

(12) **UK Patent Application** (19) **GB** (11) **2 224 934** (13) **A**  
(43) Date of A publication 23.05.1990

(21) Application No 8827256.2

(22) Date of filing 22.11.1988

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(51) INT CL<sup>4</sup>  
**A01N 65/00, C07G 17/00**

(52) UK CL (Edition J)  
**A5E EBB E210**  
**C2C CAA CXX C784 C80Y C805**  
**U1S S1290 S1308**

(56) Documents cited  
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**Pharm Acta Helv, 46 (10-11), 649-56**

(58) Field of search  
**UK CL (Edition J) A5E EAA EAB EBA EBB, C2C**  
**CXX**  
**Chemical Abstracts - CAS online**

(54) **A new insect repellent of plant origin - Myrica Gale**

(57) The leaves of Myrica Gale contain a potent insect repellent(s). This repellent activity resides in the volatile oils obtained by steam distillation of the leaves.

GB 2 224 934 A

TECHNICAL FIELD. This invention relates to a herbal insect repellent which has been developed for use against biting flies and in particular the biting midge, *Culiseta*.

BACKGROUND. In the summer of 1977 I noted that biting midges were inconspicuous in areas where extensive growth of *Myrica* Gale, the common bog myrtle, was present.

Volunteers washed their face and hands in an aqueous extract and noted a definite anti-midge effect. In the summer of 1983 the oil from *M. Gale* was separated by continuous steam distillation using standard methods. The oil was then incorporated into gels made of hydroxy propyl cellulose or the Ciba products "Cellasol" and "Courlose".

ESSENTIAL TECHNICAL FEATURES. The leaves of *M. Gale* are gathered, dried and crushed. They are then exposed to hot steam which drives off the volatile oils. The mixture of steam and oil is passed through a water cooled condenser and the oil is trapped in a side tube. These procedures are standard for the separation of volatile from materials of natural origin. The oil is then incorporated into a gel again using standard procedures. The protective effect has been noted with a concentration of oil as low as 0.5% and increases with the concentration of oil. Optimal concentrations are between 5.0 and 10.0%. These protective effects have been noted using the whole oil, no attempt has yet been made to test the individual components of the oil because there are so many of them.

LITERATURE SEARCHES. Text books, reference books and a computerised MEDLINE scan have failed to reveal any published work on the insect/midge repellent activity of *M. Gale*. Some four papers have been discovered which describe the chemistry of the volatile oil from *M. Gale*. There are at least 100 constituents. Major constituents are  $\alpha$ -pinene, 1-cineol, limonene,  $\beta$ -cymene and nerol. These will be tested separately in the summer of 1989.

EXPERIMENTAL. The leaves of M Gale were collected and dried, steam distilled and the volatile oil collected. Yield was approximately 0.2gm. per 100gm. of dried leaves. A 0.5% gel was made from 4% hydroxypropyl cellulose. A liberal application of gel was made to one arm and the volunteer was exposed to a heavy infestation of midges for 30 minutes.

The number of bites were recorded and compared with the standard which was the untreated arm in the same heavy infestation.

NUMBER OF BITES FROM MIDGES ON TREATED  
AND UNTREATED ARMS OF SEVEN VOLUNTEERS.

VOLUNTEER	UNTREATED	TREATED
1	38	0
2	17	0
3	22	2
4	8	9
5	13	2
6	29	0
7	13	6

Paired T Test highly significant(  $P < 0.001$  )

LATER WORK with a 5% preparation showed midges did not touch the skin surface, the protective effect was prolonged, no toxic effects were noted. No irritant effects were noted.

## CLAIM

AN EXTRACT FROM THE LEAVES OF THE PLANT MYRICA GALE  
REPELS INSECTS SUCH AS THE BITING MIDGE( CULICOIDES )  
WHEN APPLIED TO THE SKIN. THE EXTRACT IS COMPOSED WHOLLY  
OF VOLATILE OILS OBTAINED BY STEAM DISTILLATION.